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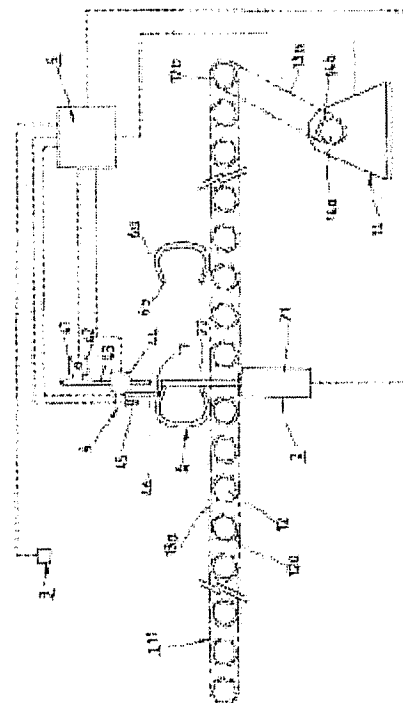
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(54) METHOD FOR PRINTING TIRE BAR CODE AND DEVICE THEREFOR

(57)Abstract:

PROBLEM TO BE SOLVED: To provide a method for directly printing a bar code on tires by which the bar code is directly printed on the tires in an automation process and thereby, a significant cost cut is achieved as well as a device therefore.

SOLUTION: Tires 6 are made to proceed in one direction and the movement of the tires 6 is detected and further, after stopping the tires 6 at a sent position, a bar code 7 is printed on the tires 6 stopped at the set position. In addition, the tires 6 printed with the bar code 7 are made to proceed in one direction to be removed from the set position. Thus it is possible to cut a product manufacturing cost and enhance the productivity.



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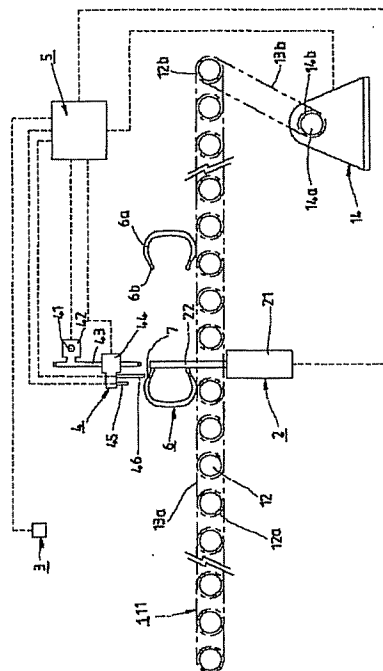
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(54) 【発明の名称】 タイヤのバーコード印刷方法及びその装置

(57) 【要約】

【課題】 本発明は、自動化工程でタイヤにバーコードを直接印刷し大幅な費用節減を可能とする、タイヤにバーコードを直接印刷する方法及びその装置を提供することにその目的がある。

【解決手段】 タイヤ(6)を一方向へ進行させ、進行するタイヤ(6)を感知し、設定位置にタイヤ(6)を停止させた後、設定位置に停止したタイヤ(6)にバーコード(7)を印刷し、バーコード(7)が印刷されたタイヤ(6)を一方向へ進行させてタイヤ(6)を設定位置より除去するものである。これにより、製品生産費が節減され、生産性の向上を図ることが可能となる。



【特許請求の範囲】

【請求項1】 タイヤ(6)を一方向へ進行させる段階と、
進行するタイヤ(6)を感知し設定位置にタイヤ(6)を停止させる段階と、
設定位置に停止したタイヤにバーコード(7)を直接印刷する段階と、
タイヤ(6)を一方向へ進行させて設定位置よりタイヤ(6)を除去する段階からなるタイヤのバーコード印刷方法。

【請求項2】 タイヤ(6)を一方向へ移送するタイヤ移送手段(1)と、タイヤ移送手段(1)により移送され、設定位置へ供給されるタイヤ(6)を感知するタイヤ感知手段(3)と、タイヤ(6)を設定位置に停止させるタイヤ停止手段(2)と、設定位置に停止したタイヤ(6)にバーコードを印刷するバーコード印刷手段(4)と、これらの各手段(1、2、3、4)等を工程別に自動制御する制御手段(5)からなるタイヤのバーコード印刷装置。

【請求項3】 上記タイヤ移送手段(1)は、制御手段(5)により作動制御されるロールコンベヤー(11)を有し、
上記タイヤ停止手段(2)は、制御手段(5)により作動制御される空圧シリンダー(21)と、該空圧シリンダー(21)のピストンロッドに固定されたストッパ(22)から構成され、
ロールコンベヤー(11)のローラー(12)の間に挿入されたストッパ(22)がタイヤ(6)の内側穴まで突出し、突出したストッパ(22)にタイヤ(6)のビード(6b)がかかるようにすることを特徴とする請求項2に記載されたタイヤのバーコード印刷装置。

【請求項4】 バーコード印刷手段(4)は、タイヤ(6)の進行方向に対して90度で交差し、タイヤ移送手段(1)の上部に固定される水平案内軸(41)と、水平案内軸(41)に移動可能な状態で固定され、且つ制御手段(5)により駆動制御されて水平案内軸(41)に沿って選択的に往復運動する第1移動手段(42)と、
水平案内軸(41)に固定され、該水平案内軸(41)と90度で交差し、且つタイヤ(6)の進行方向と90度の角をなす垂直案内軸(43)と、
タイヤ(6)との距離を感知して、測定信号を制御手段(5)に出力する距離感知センサー(45)と、
タイヤ(6)との距離を感知して、測定信号を制御手段(5)に出力する距離感知センサー(45)および、制御手段(5)により作動制御され、タイヤ(6)にバーコード(7)を印刷する噴射ノズル(46)からなり、該垂直案内軸(43)に移動可能で固定され、且つ制御手段(5)により駆動制御されて垂直案内軸(43)に沿って選択的に往復移動される第2移送手段(44)

と、から構成されることを特徴とする請求項2に記載されたタイヤのバーコード印刷装置。

【発明の詳細な説明】

【0001】

【発明の属する技術分野】本発明は、タイヤにバーコードを印刷する方法及びその装置に関するものであり、特に自動化で生産費の節減が可能となるタイヤのバーコード印刷方法及びその装置に関するものである。

【0002】

10 【従来の技術】周知の通り、タイヤは多様な種別と規格とで製造される。完成タイヤを種別及び規格別に区別できるようにするため、例えば、バーコードラベルがタイヤに貼付されている。上記バーコードはタイヤの種別と規格等の情報により区別できるように印刷されるものであり、スキャナーでバーコードを検出することにより、該タイヤの種別及び規格、または価額等の情報を簡単に出力することができる。しかし、従来ではバーコードが印刷された紙材質のラベルを作業者が手作業でタイヤに貼付するため、作業者による作業ミスが発生する等の問題があった。また、単純作業にあるにも係わらず、多数の作業者が必要なので、人件費がかさむという問題もあった。

【0003】

【発明が解決しようとする課題】上記のような問題を解消するため本発明は、自動化工程でタイヤにバーコードを直接印刷し、大幅な費用節減を可能とするタイヤにバーコードを直接印刷する方法及びその装置を提供することにその目的がある。

【0004】

30 【課題を解決するための手段】上記のような目的を達成するため、本発明は、タイヤを一方向へ進行させる段階と、進行するタイヤを感知し、設定位置にタイヤを停止させる段階と、設定位置に停止したタイヤにバーコードを印刷する段階と、タイヤを一方向へ進行させて設定位置よりタイヤを除去する段階からなるタイヤのバーコード印刷方法である。また、これを具現するためのタイヤのバーコード印刷装置は、タイヤを一方向へ選択的に移送するタイヤ移送手段と、タイヤ移送手段により移送され、設定位置への供給されるタイヤ(6)を感知するタイヤ感知手段と、タイヤを設定位置に停止させるタイヤ停止手段と、設定位置に停止したタイヤにバーコードを印刷するバーコード印刷手段と、これらの各手段を工程別に自動制御する制御手段を含む。

【0005】

【発明の実施の形態】以下、本発明の実施の形態を添付の例示図面により詳細に説明する。

【0006】図1は、本発明に係るバーコード印刷装置を概略的に図示した正面構成図であり、図2は図1に示すバーコード印刷装置の概略的な平面配置図である。本発明によるバーコード印刷装置は、サイドウォール(6

a)とビード(6b)を有するタイヤ(6)を一方方向へ移送するタイヤ移送手段(1)と、タイヤ移送手段(1)により移送され、設定位置へ供給されるタイヤ(6)を感知するタイヤ感知手段(3)と、タイヤ感知手段(3)により感知された移動するタイヤ(6)を設定位置に停止させるタイヤ停止手段(2)と、タイヤ停止手段(2)により設定位置に停止されたタイヤ(6)にバーコードを直接印刷するバーコード印刷手段(4)と、これらの各手段(1、2、3、4)等を工程別に自動制御する制御手段(5)からなる。

【0007】本実施の形態でのタイヤ移送手段(1)としては、制御手段(5)により作動制御されるロールコンベヤー(11)が用いられる。上記タイヤ停止手段(2)は、制御手段(5)により作動制御される摺動部である空圧シリンダー(21)と、該空圧シリンダー(21)のピストンロードに固定されたストッパ(22)で構成されている。タイヤを停止させる際には、ロールコンベヤー(11)のローラー(12)の間にストッパ(22)が挿入され、タイヤ(6)の内側穴に突出し、タイヤ(6)のビード(6b)がストッパ(22)にかかるとなる。上記ロールコンベヤー(11)は、チェーン(13a)を介し連結される多数のローラー(12)と、ローラーを駆動させる駆動モータ(14)からなる。各ローラー(12)の一方の先端部に上記のチェーン(13a)が結合されるチェーンギヤ(12a)が具備されている。また上記の駆動モータ(14)のモータ軸(14a)の端部にチェーンギヤ(14b)が具備されている。駆動モータ(14)はチェーン(13b)を介しチェーンギヤ(12b)を備えたローラー(12)に連結され、制御手段(5)により作動制御される。

【0008】また、上記バーコード印刷手段(4)は、タイヤ(6)の進行方向に対して90度で交差し、且つタイヤ移送手段(1)の上部に固定される水平案内軸(41)と、水平案内軸(41)に移動可能な状態で固定され、且つ制御手段(5)により駆動制御されて水平案内軸(41)に沿って選択的に往復運動する第1移送手段(42)と、水平案内軸(41)に固定され、該水平案内軸(41)と90度で交差し、且つタイヤ(6)の進行方向と90度の角をなす垂直案内軸(43)と、該垂直案内軸(43)に移動可能で固定され、且つ制御手段(5)により駆動制御されて垂直案内軸(43)に沿って選択的に往復移動される第2移送手段(44)と、該第2移送手段(44)に固定され、タイヤ(6)との距離を感知して、測定信号を制御手段(5)に出力する距離感知センサー(45)と、該第2移送手段(44)に固定され、制御手段(5)により作動制御され、タイヤ(6)にバーコード(7)を印刷する噴射ノズル(46)から構成される。

【0009】上記のバーコード印刷装置の動作を以下の

工程順で詳細に説明する。まず、駆動モータ(14)の動力は、モータ軸(14a)→チェーンギヤ(14b)→チェーン(13b)→チェーンギヤ(12b)→ローラー(12)→チェーン(13a)→各ローラーの順で伝達される。従って、タイヤ(6)がロールコンベヤー(11)のローラー(12)に乗せられると、乗せられたタイヤ(6)は平行に一列で配置されたローラー(12)の回転方向に沿って一方方向へ移送される。

【0010】以後、タイヤ感知手段(3)で設定位置に供給されるタイヤ(6)が感知されると、所定時間が経過した後、空圧シリンダー(21)が作動され、空圧シリンダー(21)のピストンロードが伸長される。このように空圧シリンダー(21)のピストンロードが伸びると、ピストンロードに固定されたストッパ(22)はローラー(12)の間に上げられ、移送されるタイヤ(6)の内側穴へ突出される。つまり、ストッパ(22)は、ローラー(12)の間にある隙間に挿入され、移送されているタイヤ(6)の内側部分に存在する穴へ突き抜けるのである。所定時間が経過した後、つまり、タイヤ(6)のビード(6b)がストッパ(22)にかかってタイヤ(6)が設定位置に設置されてからロールコンベヤー(11)の駆動モータ(14)は停止する。

【0011】次いで、第2移送手段(44)が駆動されて噴射ノズル(46)が降下する。噴射ノズル(46)とタイヤ(6)との距離が所定の距離になると、第2移送手段(44)は停止する。この際に、タイヤ(6)と噴射ノズル(46)との距離測定は距離感知センサー(45)により遂行される。

【0012】このように噴射ノズル(46)とタイヤ(6)との距離が所定の距離になると、第1移送手段(42)が駆動されて噴射ノズル(46)が水平案内軸(41)に沿って水平方向へ移動し、所定位置まで移動すると、噴射ノズル(46)が作動してタイヤ(6)にバーコード(7)を直接印刷する。ここで、タイヤ(6)のバーコード印刷位置はサイドウォール(6a)のいずれの位置でも可能である。好ましくは、図1及び図2に示す通り、ビード(6b)側のサイドウォール(6a)にバーコードが印刷されることである。タイヤ(6)は黒色なので、好ましい印刷液は白色であるほうがいい。本発明によると、タイヤ(6)にバーコード(7)が直接印刷されるので、紙材質のラベルが不要となり、タイヤにバーコードを貼付するための費用が画期的に節減できる。

【0013】上記のバーコード印刷手段(4)によるバーコードの印刷が完了すると、第1・第2移送手段(42、44)が逆方向へ駆動し、噴射ノズル(46)が初期位置に復帰する。以後、これと同時に空圧シリンダー(21)が逆方向へ作動され、ストッパ(22)がローラー(12)の下へ戻される。以後、駆動モータ(1

4) が再駆動し、タイヤ(6)が設定位置より除去される。

【0014】このようなバーコード印刷装置の動作を分析すると、本発明によるタイヤにバーコードを印刷する方法は、タイヤ(6)を一方方向へ進行させる段階と、進行するタイヤ(6)を感知し設定位置にタイヤ(6)を停止させる段階と、設定位置に停止したタイヤ(6)にバーコード(7)を印刷する段階と、タイヤ(6)を一方方向へ進行させて設定位置よりタイヤ(6)を除去する段階からなる。

【0015】

【発明の効果】上記のように本発明において、自動制御されるバーコード印刷装置を介してタイヤにバーコードを直接印刷することにより、工程が自動化され人件費の節減が可能となる。また、従来技術に比べてタイヤにバーコードを貼付するための費用が画期的に節減できる。

【0016】従って、生産費は大幅に節減され、生産性を向上させる効果がある。本発明は上記で説明した実施の形態に限定されず、以下の請求範囲から外れない範囲内で多様な形態を採ることはいうまでもない。

【図面の簡単な説明】

【図1】 本発明によるバーコード印刷装置を概略的に図示した正面構成図。

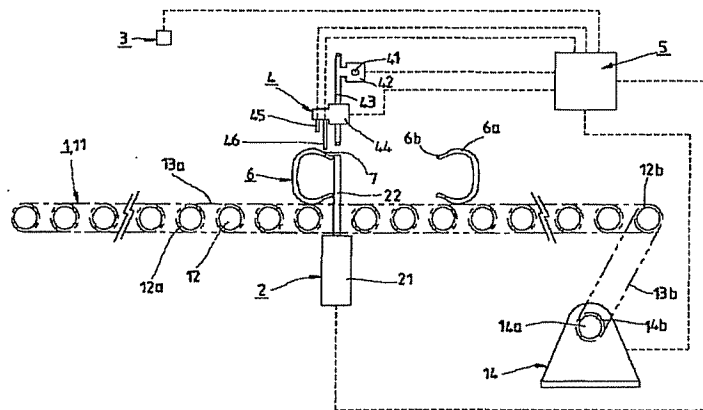
【図2】 図1に示すバーコード印刷装置の概略的な平面配置図。

【符号の説明】

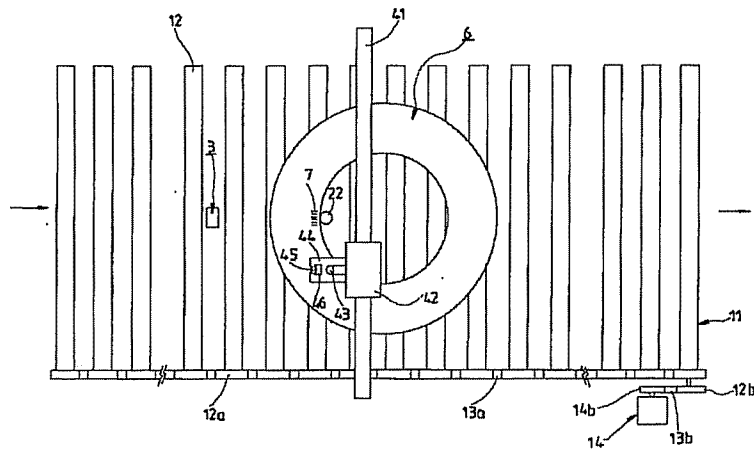
- * 1 タイヤ移送手段
- 2 タイヤ停止手段
- 3 タイヤ感知手段
- 4 バーコード印刷手段
- 5 制御手段
- 6 タイヤ
- 6a サイドウォール
- 6b ビード
- 7 バーコード
- 10 11 ロールコンベヤー
- 12 ローラー
- 12a チェーンギヤ
- 12b チェーンギヤ
- 13a、13b チェーン
- 14 駆動モータ
- 14a モータ軸
- 14b チェーンギヤ
- 21 空圧シリンダー
- 22 ストップバ
- 20 41 水平案内軸
- 42 第1移送手段
- 43 垂直案内軸
- 44 第2移送手段
- 45 距離感知センサー
- 46 噴射ノズル

*

【図1】



【図2】



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DA82 DA85 EA03 EA09 EA23
EA26 FA03
4F212 AH20 AP11 VA18 VL22 VP29
VQ04

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CLAIMS

[Claim(s)]

[Claim 1] A stage of advancing a tire (6) to one way, and a stage of perceiving an advancing tire (6) and making a setting-out position stopping a tire (6), A bar code printing method of a tire which consists of a stage which prints a bar code (7) directly into a tire which stopped in a setting-out position, and a stage of advancing a tire (6) to one way and removing a tire (6) from a setting-out position.

[Claim 2] A tire transporting means (1) which transports a tire (6) to one way, and a tire sensing device (3) which detects a tire (6) which is transported by a tire transporting means (1) and is supplied to a setting-out position, A bar code printer of a tire which consists of a tire means for stopping (2) which makes a setting-out position stop a tire (6), and a bar code printing means (4) which prints a bar code into a tire (6) which stopped in a setting-out position and a control means (5) which carries out the automatic control of each of these means (1, 2, 3, 4) according to a process.

[Claim 3] Have the above-mentioned tire transporting means (1), and a roll conveyor (11) in which operation control is carried out by control means (5) the above-mentioned tire means for stopping (2), It comprises an air pressure cylinder (21) in which operation control is carried out by control means (5), and a stopper (22) fixed to a piston load of this air pressure cylinder (21), A bar code printer of a tire indicated to claim 2 characterized by a stopper (22) inserted between rollers (12) of a roll conveyor (11) projecting to an inside hole of a tire (6), and making it a bead (6b) of a tire (6) start a projected stopper (22).

[Claim 4] A bar code printer of a tire indicated to claim 2 characterized by comprising the following.

A horizontal-guides axis (41) which a bar code printing means (4) crosses at 90 degrees to a direction of movement of a tire (6), and is fixed to the upper part of a tire transporting means (1).

The 1st transportation device (42) in which is fixed to a horizontal-guides axis (41) in the movable state, and drive controlling is carried out by control means (5) and that moves reciprocately selectively in accordance with a horizontal-guides axis (41), A vertical guiding shaft (43) which is fixed to a horizontal-guides axis (41), and intersects this horizontal-guides axis (41) at 90 degrees, and makes a direction of movement of a tire (6), and an angle of 90 degrees, A distance sensitivity sensor (45) which detects distance with a tire (6) and outputs a measurement signal to a control means (5), Distance sensitivity sensor [which outputs a measurement signal to a control means (5)] (45) Perceive distance with a tire (6) and reach, Operation control is carried out by control means (5), and it consists of an injection nozzle (46) which prints a bar code (7) into a tire (6), The 2nd transporting means (44) in which is movable to this vertical guiding shaft (43), and is fixed to it, and drive controlling is carried out by control means (5) and by which reciprocation moving is selectively carried out along with a vertical guiding shaft (43).

[Translation done.]

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention]This invention relates to the method of printing a bar code into a tire, and its device.

It is related with the bar code printing method of the tire which becomes reducible [working costs] especially by automation, and its device.

[0002]

[Description of the Prior Art]As everyone knows, a tire is manufactured by various classification and standards. In order to be able to distinguish a completion tire according to classification and a standard, the barcode label is stuck on the tire, for example. The above-mentioned bar code can output easily information, including the classification of this tire and a standard, or a price, by being printed so that it can distinguish using information, including the classification of a tire, a standard, etc., and detecting a bar code with a scanner. However, in the former, in order that a worker might stick on a tire the label of the quality of a paper material in which the bar code was printed manually, there was a problem of the work error by a worker occurring. Since many workers were required in spite of having been in monotonous work, there was also a problem that personnel expenses increased.

[0003]

[Problem(s) to be Solved by the Invention]The purpose is in providing the method of this invention printing a bar code directly into a tire by an automated process, in order to solve the above problems, and printing a bar code directly into the tire which makes large cost saving possible, and its device.

[0004]

[Means for Solving the Problem]A bar code printing method of a tire this invention is

characterized by that comprises the following in order to attain the above purposes.

A stage of advancing a tire to one way.

A stage of perceiving an advancing tire and making a setting-out position stopping a tire.

A stage which prints a bar code into a tire which stopped in a setting-out position.

A stage of advancing a tire to one way and removing a tire from a setting-out position.

A bar code printer of a tire for embodying this, A tire transporting means which transports a tire to one way selectively, and a tire sensing device which is transported by a tire transporting means and detects a tire (6) to a setting-out position supplied, A tire means for stopping which makes a setting-out position stop a tire, a bar code printing means which prints a bar code into a tire which stopped in a setting-out position, and a control means which carries out the automatic control of each of these means according to a process are included.

[0005]

[Embodiment of the Invention] Hereafter, the illustration drawing of attachment of an embodiment of the invention explains in detail.

[0006] Drawing 1 is the transverse-plane lineblock diagram which illustrated the bar code printer concerning this invention roughly, and drawing 2 is a rough plane configuration figure of the bar code printer shown in drawing 1. The tire transporting means (1) which transports the tire (6) into which the bar code printer by this invention has a sidewall (6a) and a bead (6b) to one way, The tire sensing device (3) which detects the tire (6) which is transported by a tire transporting means (1) and is supplied to a setting-out position, The tire means for stopping (2) which makes a setting-out position stop the tire (6) which has been detected by the tire sensing device (3), and which moves, It consists of a bar code printing means (4) which prints a bar code directly into the tire (6) stopped by the setting-out position by the tire means for stopping (2), and a control means (5) which carries out the automatic control of each of these means (1, 2, 3, 4) according to a process.

[0007] As a tire transporting means (1) in this embodiment, the roll conveyor (11) operation control is carried out [a conveyor] by the control means (5) is used. The above-mentioned tire means for stopping (2) comprises an air pressure cylinder (21) which is a sliding part in which operation control is carried out by the control means (5), and a stopper (22) fixed to the piston load of this air pressure cylinder (21). When stopping a tire, a stopper (22) is inserted between the rollers (12) of a roll conveyor (11), it projects in the inside hole of a tire (6), and the bead (6b) of a tire (6) comes to start a stopper (22). The above-mentioned roll conveyor (11) consists of a drive motor (14) which makes many rollers (12) connected via a chain (13a), and a roller drive. The chain gear (12a) by which the above-mentioned chain (13a) is combined with one tip part of each roller (12) possesses. The chain gear (14b) possesses at the end of the motor shaft (14a) of the above-mentioned drive motor (14). A drive motor (14) is connected with the roller (12) provided with the chain gear (12b) via the chain (13b), and operation control

is carried out by the control means (5).

[0008]The horizontal-guides axis (41) which the above-mentioned bar code printing means (4) crosses at 90 degrees to the direction of movement of a tire (6), and is fixed to the upper part of a tire transporting means (1), The 1st transportation device (42) in which is fixed to a horizontal-guides axis (41) in the movable state, and drive controlling is carried out by the control means (5) and that moves reciprocally selectively in accordance with a horizontal-guides axis (41), The vertical guiding shaft (43) which is fixed to a horizontal-guides axis (41), and intersects this horizontal-guides axis (41) at 90 degrees, and makes the direction of movement of a tire (6), and the angle of 90 degrees, The 2nd transporting means (44) in which is movable to this vertical guiding shaft (43), and is fixed to it, and drive controlling is carried out by the control means (5) and by which reciprocation moving is selectively carried out along with a vertical guiding shaft (43), It is fixed to this 2nd transporting means (44), and distance with a tire (6) is perceived, It is fixed to this 2nd transporting means (44), operation control is carried out to the distance sensitivity sensor (45) which outputs a measurement signal to a control means (5) by the control means (5), and it comprises an injection nozzle (46) which prints a bar code (7) into a tire (6).

[0009]The following process order explains operation of the above-mentioned bar code printer in detail. first, the power of a drive motor (14) -- motor shaft (14a) -> -- it is transmitted in order of chain gear (14b) -> chain (13b) -> chain gear (12b) -> roller (12) -> chain (13a) -> each roller. Therefore, if a tire (6) is put on the roller (12) of a roll conveyor (11), the put tire (6) will be transported to one way along the hand of cut of the roller (12) arranged by the single tier in parallel.

[0010]Henceforth, if the tire (6) supplied to a setting-out position by a tire sensing device (3) is perceived, after predetermined time passes, the air pressure cylinder (21) will operate and the piston load of an air pressure cylinder (21) will be elongated. Thus, if the piston load of an air pressure cylinder (21) is extended, the stopper (22) fixed to the piston load will be raised between rollers (12), and will be projected in the inside hole of the tire (6) transported. That is, it runs through a stopper (22) to the hole which is inserted in the crevice between rollers (12) and exists in the inner part of the tire (6) transported. After predetermined time passes that is, after the bead (6b) of a tire (6) starts a stopper (22) and a tire (6) is installed in a setting-out position, the drive motor (14) of a roll conveyor (11) stops.

[0011]Subsequently, the 2nd transporting means (44) drives and an injection nozzle (46) descends. If the distance of an injection nozzle (46) and a tire (6) turns into a predetermined distance, the 2nd transporting means (44) will stop. In this case, range measurement of a tire (6) and an injection nozzle (46) is carried out by a distance sensitivity sensor (45).

[0012]Thus, if the distance of an injection nozzle (46) and a tire (6) turns into a predetermined distance, If the 1st transporting means (42) drives, an injection nozzle (46) moves horizontally

in accordance with a horizontal-guides axis (41) and it moves to a prescribed position, the injection nozzle (46) will operate and a bar code (7) will be directly printed into a tire (6). Here, the bar code print point of a tire (6) is possible in any position of a sidewall (6a). Preferably, it is that a bar code is printed by the sidewall (6a) by the side of a bead (6b) as shown in drawing 1 and drawing 2. Since a tire (6) is black, the whiter one of desirable printing liquid is good. Since a bar code (7) is directly printed by the tire (6) according to this invention, the label of the quality of a paper material becomes unnecessary, and the expense for sticking a bar code on a tire can reduce epoch-makingly.

[0013]If printing of the bar code by the above-mentioned bar code printing means (4) is completed, the 1st-2nd transporting means (42, 44) will drive to an opposite direction, and an injection nozzle (46) will return to an initial position. Henceforth, the pneumatics cylinder (21) operates to an opposite direction simultaneously with this, and a stopper (22) is returned to under a roller (12). Henceforth, a drive motor (14) re-drives and a tire (6) is removed from a setting-out position.

[0014]If operation of such a bar code printer is analyzed, the method of printing a bar code into the tire by this invention, The stage of advancing a tire (6) to one way, and the stage of perceiving the advancing tire (6) and making a setting-out position stopping a tire (6), It consists of a stage which prints a bar code (7) into the tire (6) which stopped in the setting-out position, and a stage of advancing a tire (6) to one way and removing a tire (6) from a setting-out position.

[0015]

[Effect of the Invention]As mentioned above, in this invention, by printing a bar code directly into a tire via the bar code printer by which automatic control is carried out, a process is automated and reduction of personnel expenses is attained. The expense for sticking a bar code on a tire compared with conventional technology can reduce epoch-makingly.

[0016]Therefore, working costs are reduced substantially and it is effective in raising productivity. It cannot be overemphasized that various gestalten are taken within limits by which this invention is not limited to the embodiment described above and from which it does not separate from the following generic claims.

[Translation done.]

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TECHNICAL FIELD

[Field of the Invention]This invention relates to the method of printing a bar code into a tire, and its device.

It is related with the bar code printing method of the tire which becomes reducible [working costs] especially by automation, and its device.

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PRIOR ART

[Description of the Prior Art]As everyone knows, a tire is manufactured by various classification and standards. In order to be able to distinguish a completion tire according to classification and a standard, the barcode label is stuck on the tire, for example. The above-mentioned bar code can output easily information, including the classification of this tire and a standard, or a price, by being printed so that it can distinguish using information, including the classification of a tire, a standard, etc., and detecting a bar code with a scanner. However, in the former, in order that a worker might stick on a tire the label of the quality of a paper material in which the bar code was printed manually, there was a problem of the work error by a worker occurring. Since many workers were required in spite of having been in monotonous work, there was also a problem that personnel expenses increased.

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TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention]The purpose is in providing the method of this invention printing a bar code directly into a tire by an automated process, in order to solve the above problems, and printing a bar code directly into the tire which makes large cost saving possible, and its device.

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MEANS

[Means for Solving the Problem]A bar code printing method of a tire this invention is characterized by that comprises the following in order to attain the above purposes.

A stage of advancing a tire to one way.

A stage of perceiving an advancing tire and making a setting-out position stopping a tire.

A stage which prints a bar code into a tire which stopped in a setting-out position.

A stage of advancing a tire to one way and removing a tire from a setting-out position.

A bar code printer of a tire for embodying this, A tire transporting means which transports a tire to one way selectively, and a tire sensing device which is transported by a tire transporting means and detects a tire (6) to a setting-out position supplied, A tire means for stopping which makes a setting-out position stop a tire, a bar code printing means which prints a bar code into a tire which stopped in a setting-out position, and a control means which carries out the automatic control of each of these means according to a process are included.

[0005]

[Embodiment of the Invention]Hereafter, the illustration drawing of attachment of an embodiment of the invention explains in detail.

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1]The transverse-plane lineblock diagram which illustrated the bar code printer by this invention roughly.

[Drawing 2]The rough plane configuration figure of the bar code printer shown in drawing 1.

[Description of Notations]

1 Tire transporting means

2 Tire means for stopping

3 Tire sensing device

4 Bar code printing means

5 Control means

6 Tire

6a sidewall

6b bead

7 Bar code

11 Roll conveyor

12 Roller

12a chain gear

12b chain gear

13a, 13b chain

14 Drive motor

14a motor shaft

14b chain gear

21 Air pressure cylinder

22 Stopper

41 Horizontal-guides axis

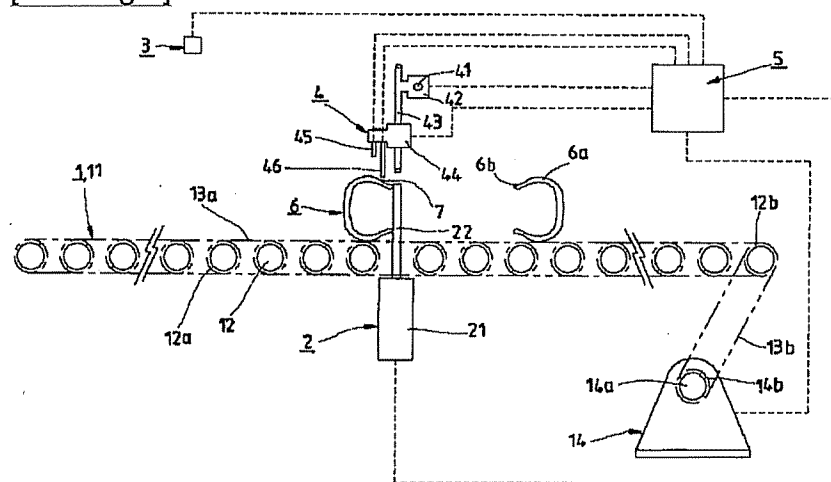
- 42 The 1st transporting means
- 43 Vertical guiding shaft
- 44 The 2nd transporting means
- 45 Distance sensitivity sensor
- 46 Injection nozzle

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[Drawing 1]



[Drawing 2]

